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The Need of Education and Training on Maritime Energy Efficiency (EE) in Myanmar








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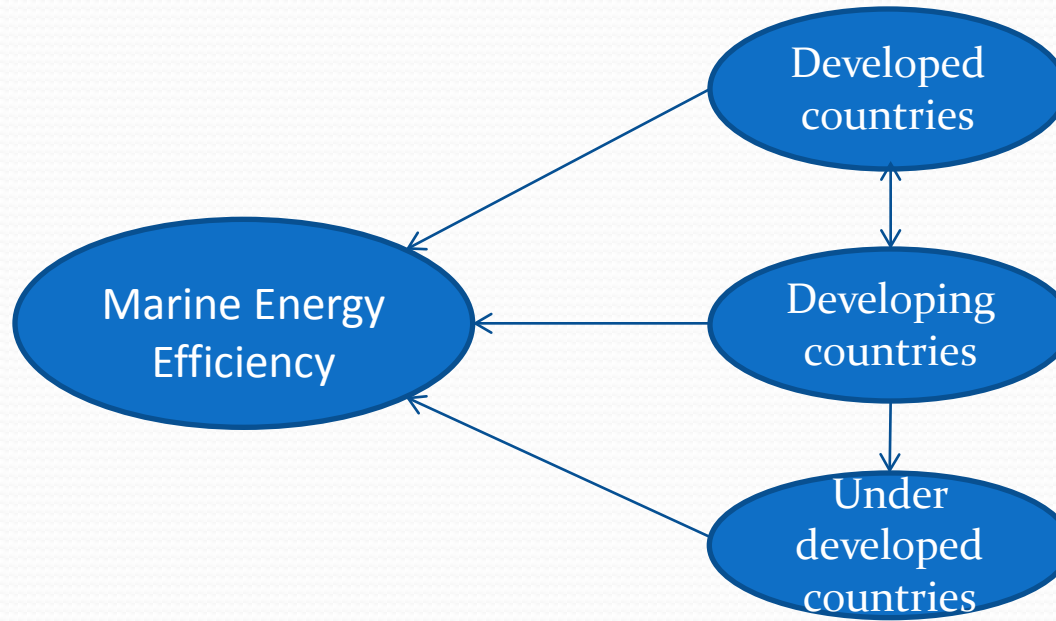
Objectives

-  To highlight the **barriers** of developing countries to implement EE
-  To **link** up the developing and developed countries in operating of EE plans
-  To point out the **essential role of education and training** in improving EE technology

Topics

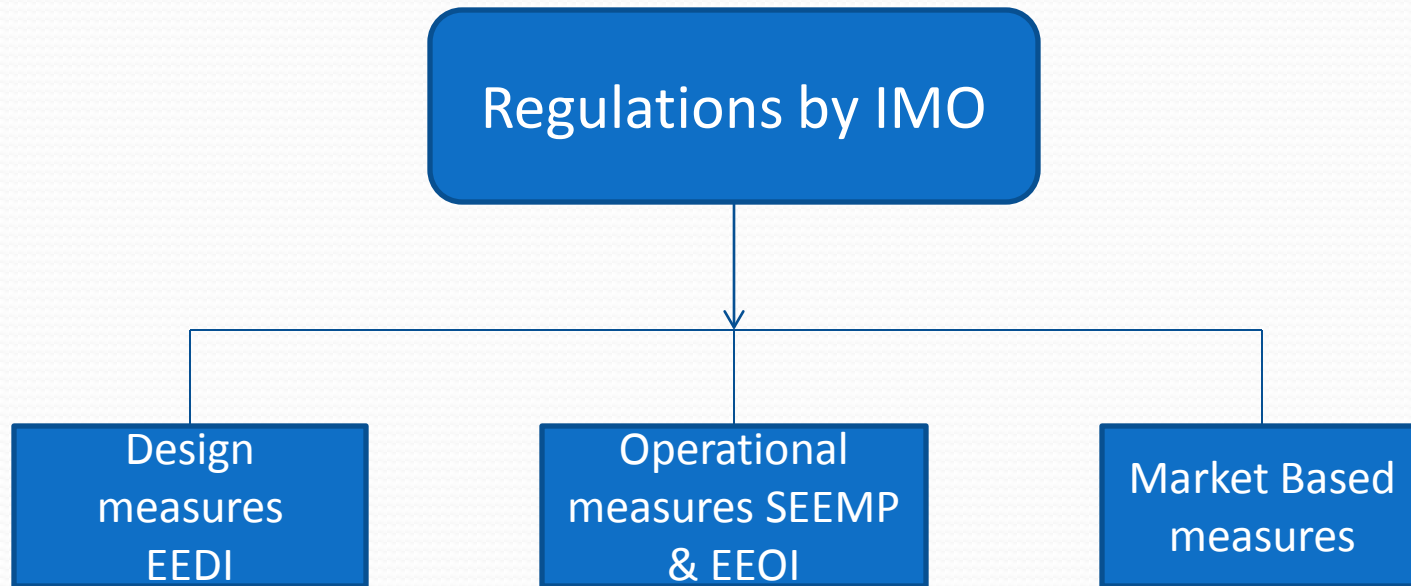
-  **Part I:** Introduction
-  **Part II:** Myanmar Maritime Industry Situation
-  **Part III:** Current Activities of Training Institutes in Myanmar
-  **Part IV:** Best Practices for Myanmar
-  **Part V:** Discussion & Conclusion

Part I: Introduction



- 🏛️ To eliminate air pollution by shipping industry
- 🏛️ To establish clean ocean and green environment in Myanmar





IMO Energy Efficiency Measures in Marine Industry






Part II :Current Myanmar Maritime Industry Situation

i. Strengths



1. Geographical feature

-  Strategic area of South East Asia
-  Long costal line and deep sea ports
-  Shortest way to contact east and west of the world
-  Many navigable rivers

2. Natural Resources

-  Oil
-  Natural gas
-  Resources for renewable energy such as wind , wave , tide, hydraulic and solar





3. Human Resources

-  Humble people
-  Quick leaners






ii. Weaknesses





1. Inland Region

-  Outdated inland vessels
-  Lack of awareness
-  Shortage of modernized seafarers
-  Poverty of regional people

2. Offshore Region

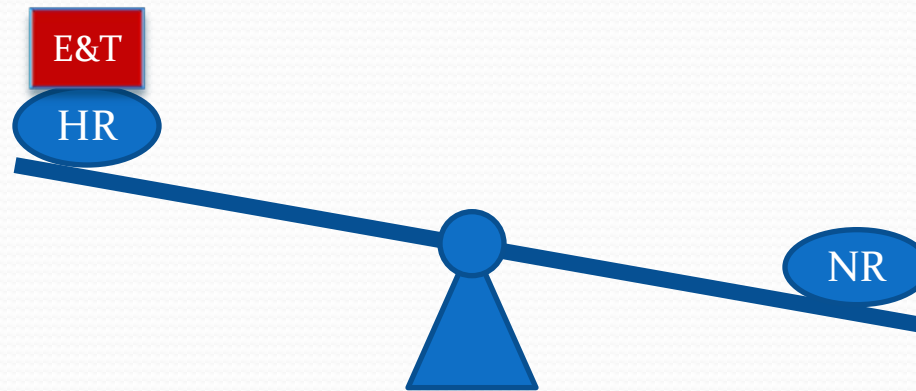
-  Insufficient operational support
-  Lack of marine environmental protection
-  Lack of legislation and contingency plans

3. Myanmar Shipbuilding and Port sector

-  Still applying conventional method in building
-  Not really get enough information about EE
-  Need more facilities and infrastructure in port operation
-  Draft limitation for sea going vessels






III. Important Role of Education and Training (E&T)for Human Resource rather than Natural Resources



- State income achieve by exporting raw natural resources
- Lack of technology to apply the raw materials to become quality exports
(for example : LNG bunkering stations in Deep sea ports)

Part III: Current Activities for Energy Efficiency Management of Training Institutes in Myanmar

-  MMU (Myanmar Maritime University)
-  MMC (Myanmar Mercantile Marine College)
-  Private Training Centers authorized by DMA

MMU

Recent Researches within 2014 to 2016

Study of **Trim Dependence for Ship performance** in the Actual Sea Conditions by Computational Fluid Dynamics (**CFD**)

Study on **Hull Form Optimization for Minimum Wave Resistance** Based on Rankine Source Method

Trim Optimization of container ship by test tank and numerical simulation

Analysis of the Passenger Ship with **EEDI Specifications**: Using Light Material for Superstructure (**Renovation Technology**)

MMMC and Private Training Centers

Certificate of Competency Courses (CoC) are based on IMO model courses 7.01, 7.02, 7.03, 7.04

Voyage
Planning

Weather
routing

Waste heat
recovery
system

Trim
optimization

Low sulphur
content fuel

Part IV: Proposing Best Practices for EE Training in Myanmar

Legislation

National laws for Air pollution
MARPOL, Annex VI
(Suitable guideline: Annex 7, MEPC
62/24)

Building Networking Capacity

Not only Academic Activities but also
National and International Activities.

Best Practices

Adhesion to IMO Model Courses

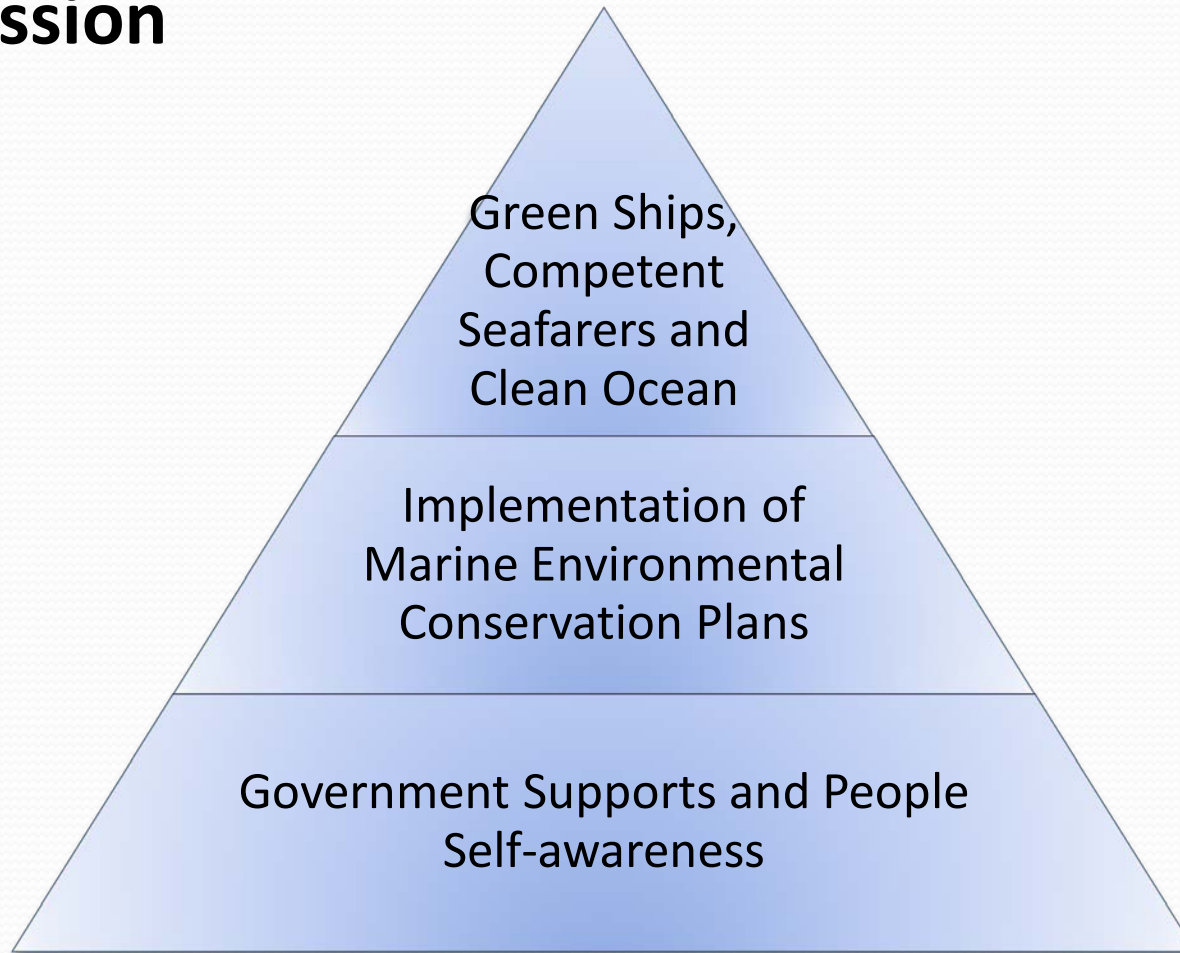
Training Courses on Energy Efficiency
Operation of Ships

Cooperation with Regional Society

ASEAN ; BIMSTEC; Colombo Plan
and etc.

Part V: Discussion and Conclusion

I. Discussion



Hierarchies for Implementations of Marine Energy Efficiency Measures

Government Organizations and Recognized Organizations can:

-  **Coordinate** in national level
-  **Cooperate** at international level
-  **Promote awareness** amongst recognized classification societies
-  **Support and Incentives** ship owners and builders
-  **Set fuel-efficiency standards** and labeling for vehicles

II: Conclusion

Root Causes of Barriers are lack of:

Embedded
legislation

- For Environmental protection especially for marine environment air pollution

Information
& Technology

- Amongst Stakeholders; Ship owners/builders, Port Administrators, Classification societies

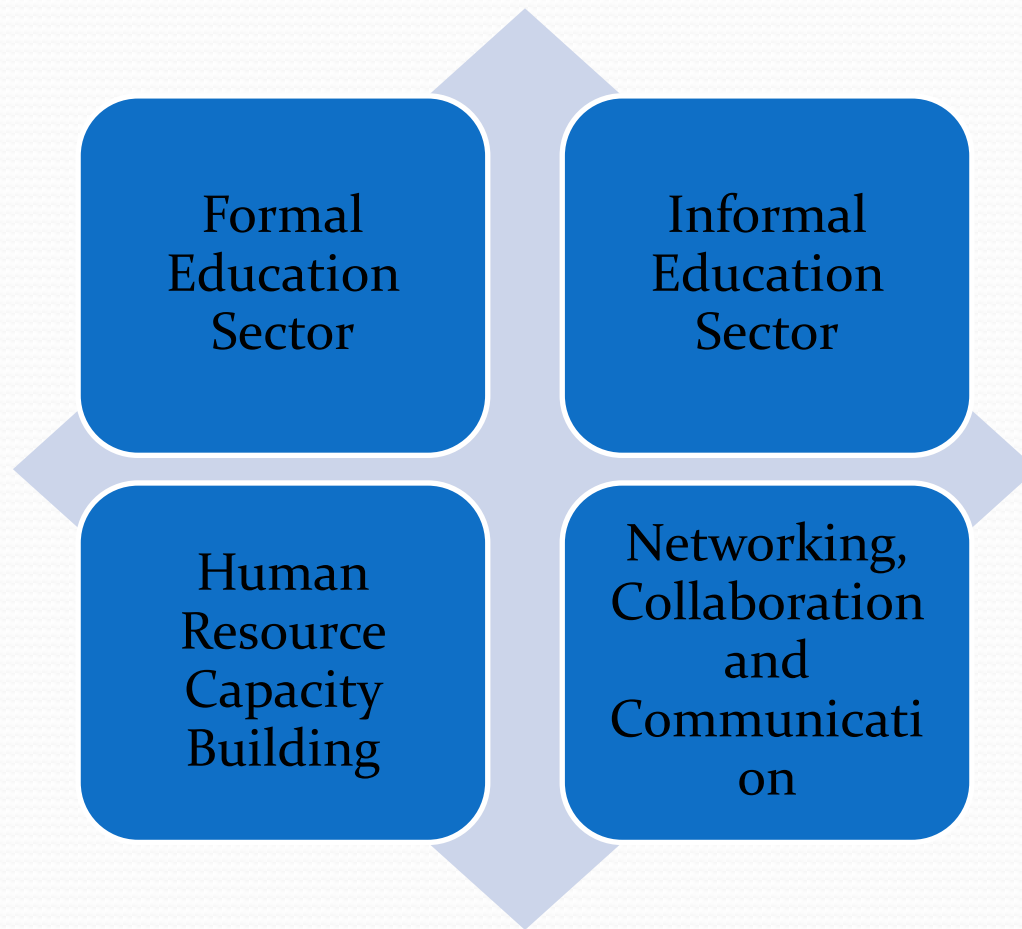
Affordable
funding

- To apply the energy efficiency measures
- To build facility and infrastructures

Awareness

- Policy Information & Implementation barrier
- Local Ship operators
- Local people base on their poverty

E&T should emphasize on the following areas by applying the proposed best practices :



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Thanks for your Attention

Question!!!

